

California Cooperative
Snow Surveys
Bulletin 120-1-97

State of California
The Resources Agency

Department of
Water Resources



Report 1 February 1, 1997

Pete Wilson
Governor
State of California

Douglas P. Wheeler
Secretary for Resources
The Resources Agency

David N. Kennedy
Director
Department of Water Resources

STATE OF CALIFORNIA

Pete Wilson, Governor

THE RESOURCES AGENCY

Douglas P. Wheeler, Secretary for Resources

Department of Water Resources

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COOPERATING AGENCIES

Public Agencies

Buena Vista Water Storage District
Central California Irrigation District
East Bay Municipal Utility District
Friant Water Users Association
Kaweah Delta Water Conservation District
Kern Delta Water District
Kings River Conservation District
Lower Tule River Irrigation District
Merced Irrigation District
Modesto Irrigation District
Nevada Irrigation District
North Kern Water Storage District
Northern California Power Agency
Oakdale Irrigation District
Omochromne-Hartnell Water District
Oroville-Wyandotte Irrigation District
Placer County Water Agency
Sacramento Municipal Utility District
South San Joaquin Irrigation District
Tri-Dam Project
Tulare Lake Basin Water Storage District
Turlock Irrigation District
Yuba County Water Agency

Private Organizations

J.G. Boswell Company
Kaweah River Association
Kings River Water Association
St. Johns River Association
Tule River Association
State Water Contractors

Municipalities

City of Bakersfield Water Department
City of Los Angeles Department of Water and Power
City and County of San Francisco Hetch Hetchy Water and Power

State Agencies

California Department of Forestry & Fire Protection
California Department of Water Resources

Public Utilities

Pacific Gas and Electric Company
Southern California Edison Company

Federal Agencies

U.S. Department of Agriculture
Forest Service (14 National Forests)
Pacific Southwest Forest and Range Experiment Station
Natural Resource Conservation Service
U.S. Department of Commerce
National Weather Service
U.S. Department of Interior
Bureau of Reclamation
Geological Survey, Water Resources
National Park Service (3 National Parks)
U.S. Department of Army
Corps of Engineers
Other Cooperative Programs
Nevada Cooperative Snow Surveys
Oregon Cooperative Snow Surveys

Summary of Water Conditions February 1, 1997

This has been a year of large storms. By mid-December seasonal precipitation totals were exceeding 150 percent. These already impressive amounts were boosted by the big New Year's subtropical storm which produced record flood flows on many Sierra rivers. Water supplies this year are more than ample; the problem is excess amounts -- such a contrast to the drought years at the start of the decade which seem now to be a distant memory.

Forecasts of runoff for the April through July period are far above normal at 145 percent of average. Snowmelt runoff percentages are much higher in the south, less in the north where much of the storm precipitation was in the form of rain to moderately high elevations. Water year runoff forecasts are about 50 percent higher because of the heavy winter runoff.

Snowpack water content is about 160 percent of average statewide for this date and about 100 percent of the average for April 1, the date of maximum accumulation. Last year the pack was 90 percent of average at this time. Snowpack percentages are much higher in the higher elevation southern Sierra.

Precipitation during January was about 190 percent of average. Statewide precipitation since October 1 was 185 percent of average. Last year it was 95 percent of average. The entire State except for the southeastern corner is well above average.

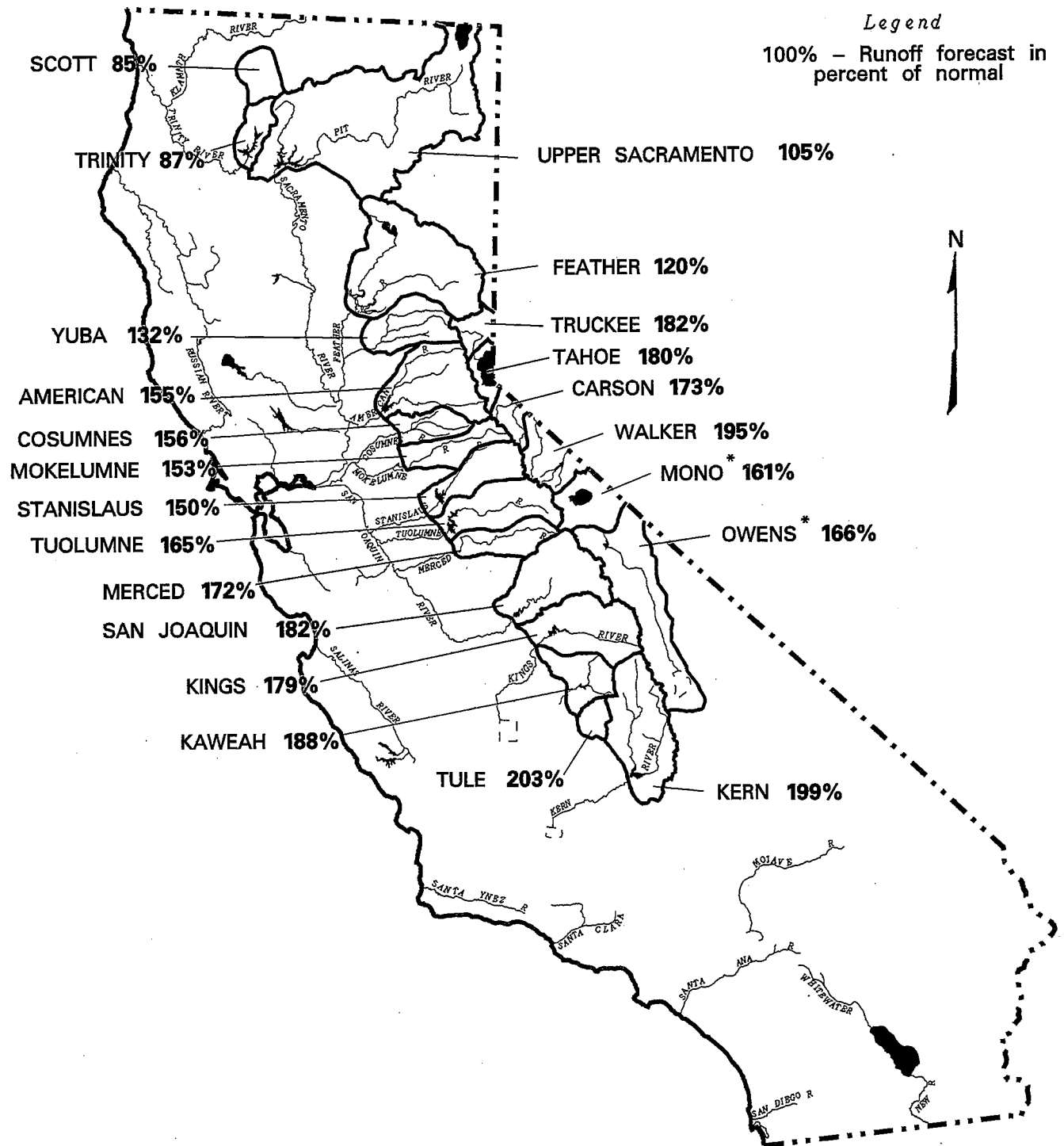
Runoff so far this season has been enormous, almost three times average compared to 85 percent last year. January runoff seems to have been 390 percent of average for the month, reflecting the floods. Estimated January runoff of the 8 major rivers of the Sacramento and San Joaquin River regions was 12.1 million acre-feet, a record for the month.

Reservoir storage remains excellent at 135 percent of average, and 83 percent of capacity. Some of the storage is due to temporary encroachment into flood control space at many San Joaquin Valley foothill reservoirs. Total storage last year was 120 percent of average.

SUMMARY OF WATER CONDITIONS IN PERCENT OF AVERAGE

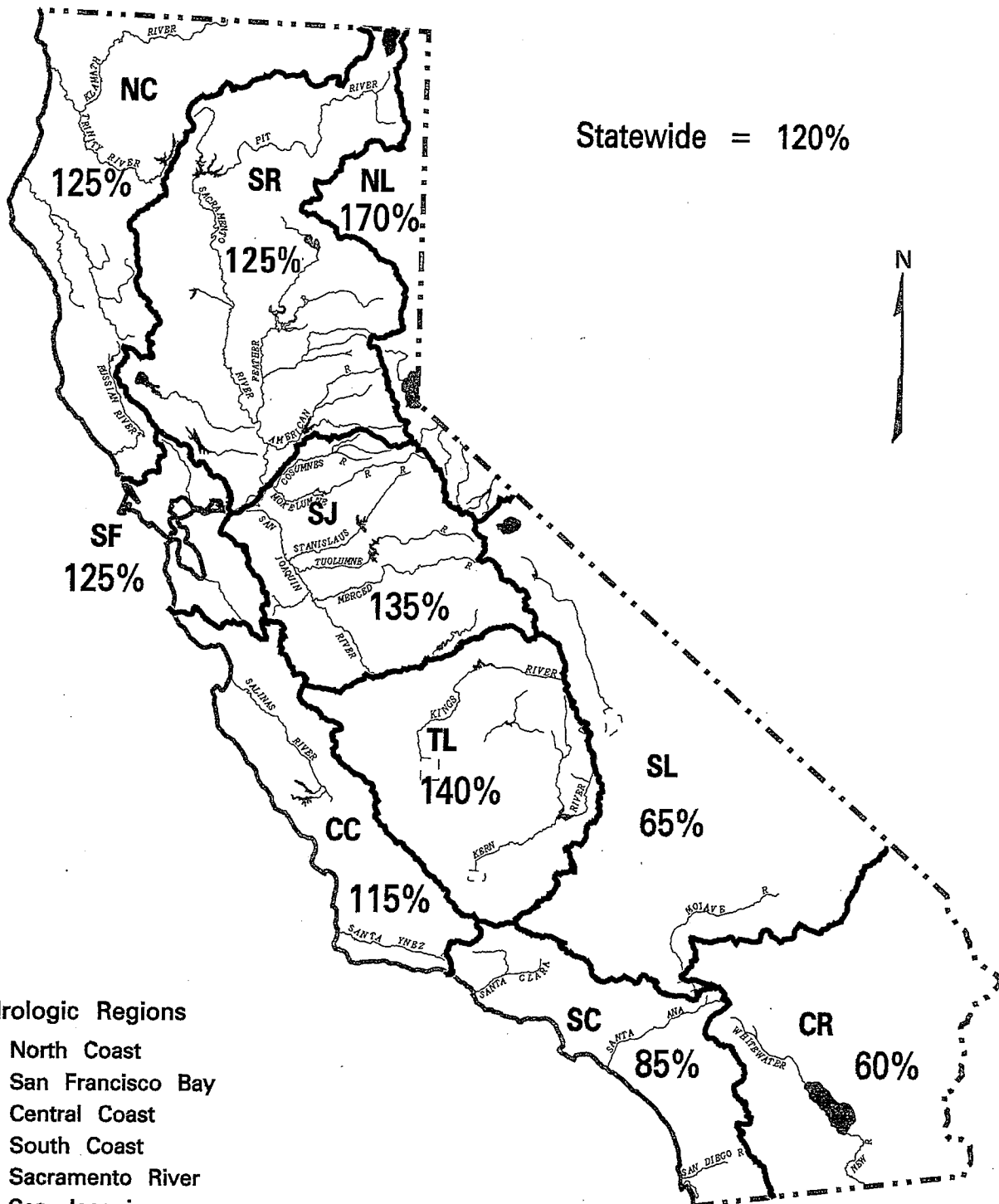
HYDROLOGIC REGION	PRECIPITATION OCTOBER 1 TO DATE	FEBRUARY 1 SNOW WATER CONTENT	FEBRUARY 1 RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	APR-JULY RUNOFF FORECAST	WATER YEAR RUNOFF FORECAST
NORTH COAST	160	80	120	240	85	150
SAN FRANCISCO BAY	200	--	140	280	--	--
CENTRAL COAST	205	--	140	370	--	--
SOUTH COAST	160	--	130	150	--	--
SACRAMENTO RIVER	190	115	120	280	125	180
SAN JOAQUIN RIVER	235	200	155	510	165	230
TULARE LAKE	235	200	220	430	185	220
NORTH LAHONTAN	250	180	185	400	180	200
SOUTH LAHONTAN	120	220	85	130	165	160
COLORADO RIVER- DESERT	80	---	---	---	---	---
STATEWIDE	185	155	135	290	145	195

FORECAST OF APRIL - JULY
UNIMPAIRED SNOWMELT RUNOFF
 February 1, 1997



* FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES

SEASONAL PRECIPITATION
 IN PERCENT OF AVERAGE TO DATE
 October 1, 1996 through April 30, 1997



- Hydrologic Regions**
- NC - North Coast
 - SF - San Francisco Bay
 - CC - Central Coast
 - SC - South Coast
 - SR - Sacramento River
 - SJ - San Joaquin
 - TL - Tulare Lake
 - NL - North Lahontan
 - SL - South Lahontan
 - CR - Colorado River-Desert

WATER YEAR IS OCTOBER 1 THROUGH SEPTEMBER 30

**MAY 1, 1997 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF**

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet (1)					
	HISTORICAL			FORECASTS		
	50 Yr Avg (2)	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg	80 % Probability Range (1)
SACRAMENTO RIVER						
Upper Sacramento River						
Sacramento River at Shasta Lake (3)	297	702	39	160	54%	
McCloud River at Shasta Lake	392	850	185	280	71%	
Pit River at Shasta Lake	1,056	1,796	480	890	84%	
Total Inflow to Shasta Lake	1,801	3,189	726	1,400	78%	1,170 - 1,720
Sacramento River above Bend Bridge, near Red Bluff	2,451	4,674	943	1,720	70%	1,440 - 2,100
Feather River						
Feather River at Lake Almanor near Prattville (3)	333	675	120	240	72%	
North Fork at Pulga (3)	1,028	2,416	243	690	67%	
Middle Fork near Clio (4)	86	518	4	55	64%	
South Fork at Ponderosa Dam (3)	110	267	13	70	64%	
Total Inflow to Oroville Reservoir	1,831	4,676	392	1,220	67%	980 - 1,530
Yuba River						
North Yuba below Goodyears Bar (3)	286	647	51	220	77%	
Inflow to Jackson Mdw and Bowman Reservoirs (3)	112	236	25	90	80%	
South Yuba at Langs Crossing (3)	233	481	57	180	77%	
Yuba River at Smartville	1,029	2,424	200	800	78%	700 - 950
American River						
North Fork at North Fork Dam (3)	262	716	43	210	80%	
Middle Fork near Auburn (3)	522	1,406	100	440	84%	
Silver Creek Below Camino Diversion Dam (3)	173	386	37	140	81%	
Total Inflow to Folsom Reservoir	1,261	3,074	229	1,050	83%	940 - 1,220
SAN JOAQUIN RIVER						
Cosumnes River at Michigan Bar	128	363	8	60	47%	35 - 95
Mokelumne River						
North Fork near West Point (5)	437	829	104	370	85%	
Total Inflow to Pardee Reservoir	459	1,065	102	410	89%	365 - 480
Stanislaus River						
Middle Fork below Beardsley Dam (3)	334	702	64	300	90%	
North Fork Inflow to McKays Point Dam (3)	224	503	34	200	89%	
Total Inflow to New Melones Reservoir	699	1,710	116	640	92%	530 - 740
Tuolumne River						
Cherry Creek & Eleanor Creek near Hetch Hetchy (3)	322	727	97	310	96%	
Tuolumne River near Hetch Hetchy (3)	606	1,392	153	610	101%	
Total Inflow to New Don Pedro Reservoir	1,184	2,682	301	1,200	101%	1,090 - 1,350
Merced River						
Merced River at Pohono Bridge (3)	362	888	80	380	105%	
Total Inflow to Lake McClure	611	1,587	123	650	106%	590 - 730
San Joaquin River						
San Joaquin River at Mammoth Pool (6)	1,014	2,279	235	1,150	113%	
Big Creek below Huntington Lake (6)	95	264	11	110	116%	
South Fork near Florence Lake (6)	202	511	58	230	114%	
Total Inflow to Millerton Lake	1,212	3,355	262	1,440	119%	1,330 - 1,570
TULARE LAKE						
Kings River						
North Fork Kings River near Cliff Camp (3)	239	565	50	290	121%	
Total Inflow to Pine Flat Reservoir	1,183	3,114	273	1,450	123%	1,340 - 1,570
Kaweah River at Terminus Reservoir	276	814	61	320	116%	290 - 350
Tule River at Success Reservoir	59	256	2	55	93%	45 - 70
Kern River						
Kern River near Kernville (3)	373	1,203	83	460	123%	
Total Inflow to Isabella Reservoir	442	1,657	84	550	124%	510 - 630

(1) See inside back cover for definition

(2) All 50 year averages are based on years 1946-1995 unless otherwise noted

(3) 50 year average based on years 1941-90

(4) 44 year average based on years 1936-79

(5) 36 year average based on years 1936-72

(6) 45 year average based on years 1936-81

**FEBRUARY 1, 1997 FORECASTS
WATER YEAR UNIMPAIRED RUNOFF**

Unimpaired Runoff in 1,000 Acre-Feet (1)													
HISTORICAL			DISTRIBUTION								FORECASTS		
50 Yr Avg (2)	Max of Record	Min of Record	Oct Thru Jan*	Feb	Mar	Apr	May	Jun	Jul	Aug & Sep	Water Year Forecasts	Pct of Avg	80 % Probability Range (1)
856	1,964	165											
1,184	2,353	577											
3,078	5,150	1,484											
5,896	10,796	2,479	4,400	1,300	1,000	770	560	330	240	450	9,050	153%	7,430 - 11,200
8,518	17,180	3,294	6,210	2,200	1,600	960	840	460	320	560	13,150	154%	10,800 - 16,500
780	1,269	366											
2,417	4,400	666											
219	637	24											
291	562	32											
4,526	9,492	994	4,380	910	700	850	800	360	190	200	8,390	185%	7,150 - 10,400
564	1,056	102											
181	292	30											
379	565	98											
2,337	4,926	369	2,500	500	430	490	500	300	70	50	4,840	207%	4,200 - 5,800
616	1,234	66											
1,070	2,575	144											
318	705	59											
2,674	6,381	349	3,180	600	450	590	780	460	130	50	6,240	233%	5,450 - 7,630
378	1,253	20	610	140	110	100	70	24	6	5	1,065	282%	930 - 1,320
626	1,009	197											
736	1,800	129	620	170	130	170	260	220	50	10	1,630	221%	1,420 - 1,980
471	929	88											
1,131	2,952	155	980	200	200	270	380	300	100	30	2,460	218%	2,050 - 3,000
461	1,147	123											
770	1,661	258											
1,857	4,430	383	1,540	300	330	360	630	640	320	80	4,200	226%	3,600 - 4,900
461	1,020	92											
952	2,859	150	925	200	170	200	380	340	130	45	2,390	251%	2,050 - 2,800
1,337	2,964	308											
112	298	14											
248	653	71											
1,753	4,642	362	1,065	260	300	350	710	790	350	175	4,000	228%	3,460 - 4,780
284	607	58											
1,647	4,294	383	810	170	160	310	690	760	360	140	3,400	206%	2,860 - 4,100
431	1,402	92	335	60	60	110	180	160	70	25	1,000	232%	860 - 1,200
135	615	16	225	50	40	45	45	20	10	5	440	326%	380 - 530
558	1,577	163											
694	2,309	175	365	100	120	190	300	270	120	75	1,540	222%	1,300 - 2,200

* Indicates observed runoff

**MAY 1, 1997 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF**

HYDROLOGIC REGION and Watershed	Unimpaired Runoff in 1,000 Acre-Feet (1)				
	HISTORICAL			FORECASTS	
	50 Yr Avg (2)	Max of Record	Min of Record	Apr-Jul Forecasts	Pct of Avg
NORTH COAST					
Trinity River					
Total Inflow to Lewiston Lake	642	1,593	80	360	56%
Scott River					
Near Fort Jones	200	N/A	N/A	110	55%
Klamath River					
Total inflow to Upper Klamath Lake (3)	337	531	229	380	113%
NORTH LAHONTAN					
Truckee River					
Lake Tahoe to Farad accretions	264	713	58	290	110%
Lake Tahoe Rise (assuming gates closed, in feet) (4)	1.5	3.8	0.2	1.6	107%
Carson River					
West Fork at Woodfords	54	135	12	70	130%
East Fork near Gardnerville	183	407	43	220	120%
Walker River					
West Fork near Coleville	143	330	35	200	140%
East Fork near Bridgeport	61	209	7	80	131%
SOUTH LAHONTAN					
Owens River					
Total tributary flow to Owens River (5)	226	579	96	280	124%

(1) See inside back cover for definition

(2) All 50 year averages are based on years 1946-1995 unless otherwise noted

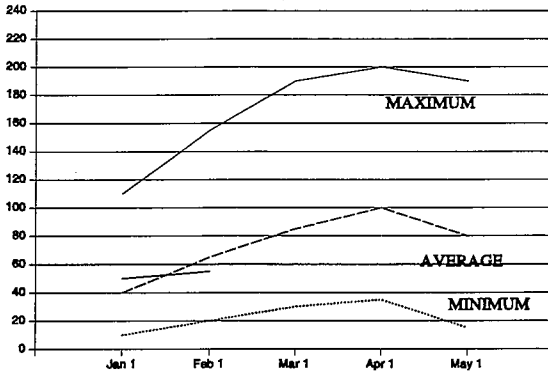
(3) Forecast by U.S. Natural Resources Conservation Service, Portland Oregon, 30 year average based on years 1961-1990.
May through September forecast.

(4) 50 year average based on years 1941-1990

(5) Forecast by Department of Water and Power, City of Los Angeles

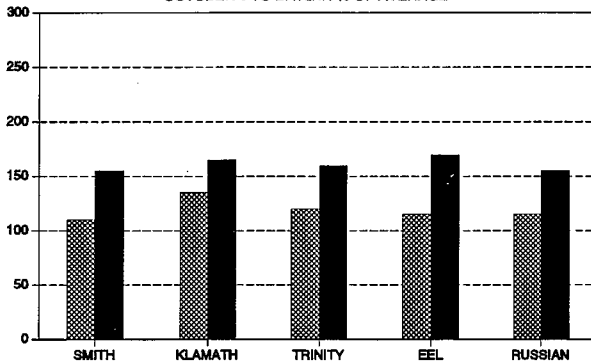
NORTH COAST REGION

SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE



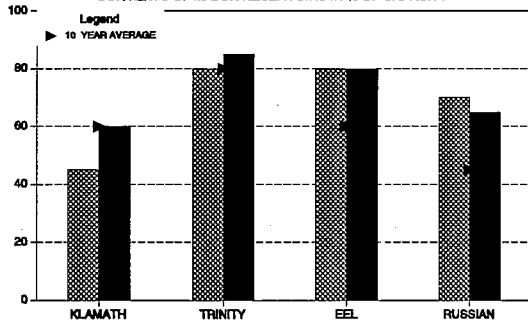
SNOWPACK - First of the month measurements made at 12 snow courses indicate an area wide snow water equivalent of 16.6 inches. This is 80 percent of the February 1 average and 55 percent of the seasonal (April 1) average. Last year at this time the pack was holding 20.2 inches of water.

PRECIPITATION
OCTOBER 1 TO DATE IN % OF AVERAGE



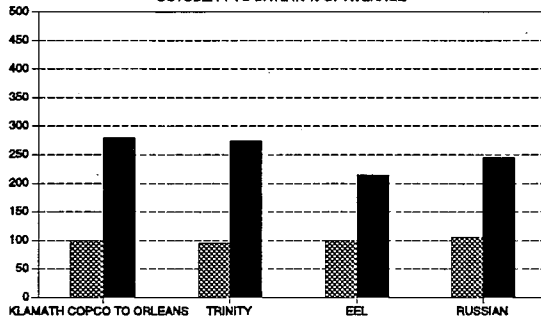
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 160 percent of normal. Precipitation last month was about 140 percent of the monthly average. Seasonal precipitation at this time last year stood at 120 percent of normal.

RESERVOIR STORAGE
CONTENTS OF MAJOR RESERVOIRS IN % OF CAPACITY



RESERVOIR STORAGE - First of the month storage in 7 reservoirs was 2.6 million acre-feet which is 120 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 115 percent of average.

RUNOFF
OCTOBER 1 TO DATE IN % OF AVERAGE



RUNOFF - Seasonal runoff of streams draining the area totaled 13.3 million acre-feet which is 240 percent of average for this period. Last year, runoff for the same period was 100 percent of average.



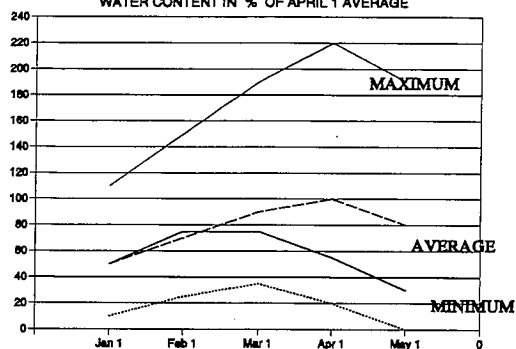
LAST YEAR



THIS YEAR

SNOWPACK ACCUMULATION

WATER CONTENT IN % OF APRIL 1 AVERAGE

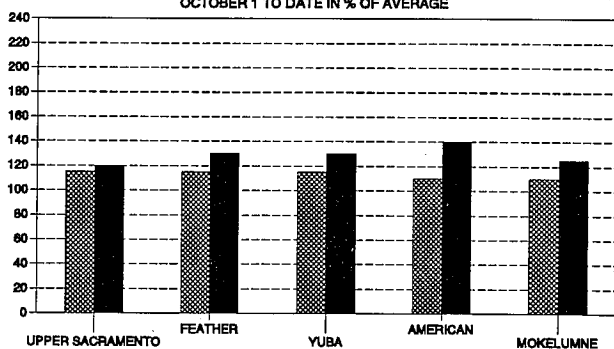


SACRAMENTO RIVER REGION

SNOWPACK - First of the month measurements made at 70 snow courses indicate an area wide snow water equivalent of 10.2 inches. This is 25 percent of the seasonal (April 1) average and 30 percent of the average for this date. Last year at this time the pack was holding 22.2 inches of water.

PRECIPITATION

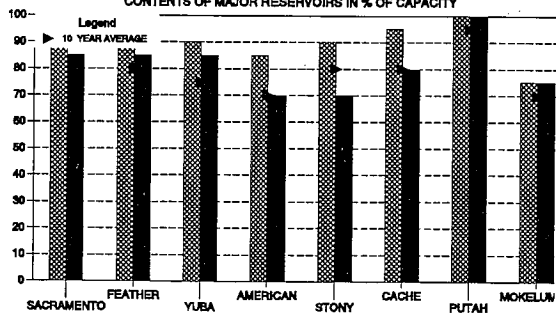
OCTOBER 1 TO DATE IN % OF AVERAGE



PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on this area was 120 percent of normal. Precipitation last month was about 60 percent of the monthly average. Seasonal precipitation at this time last year stood at 115 percent of normal.

RESERVOIR STORAGE

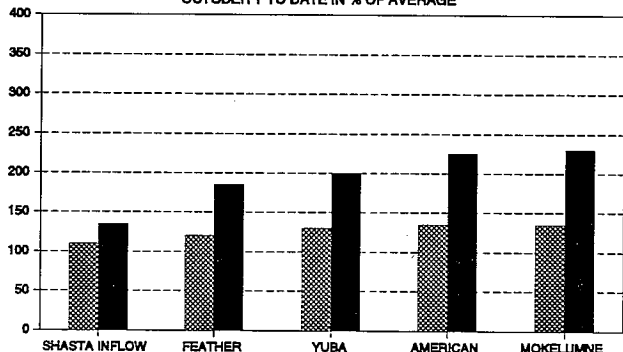
CONTENTS OF MAJOR RESERVOIRS IN % OF CAPACITY



RESERVOIR STORAGE - First of the month storage in 43 reservoirs was 14 million acre-feet which is 105 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 115 percent of average.

RUNOFF

OCTOBER 1 TO DATE IN % OF AVERAGE



RUNOFF - Seasonal runoff of streams draining the area totaled 22 million acre-feet which is 165 percent of average for this period. Last year, runoff for the same period was 120 percent of average.

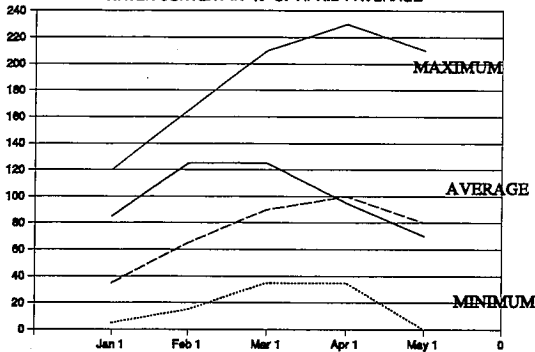
The Sacramento River Region 40-30-30 Water Supply Index is forecasted to be 11.0 million acre-feet assuming median meteorological conditions for the remainder of the year. This classifies the year as "wet" in the Sacramento-San Joaquin Delta according to the State Water Resources Control Board.

LAST YEAR

THIS YEAR

SAN JOAQUIN RIVER AND TULARE LAKE REGIONS

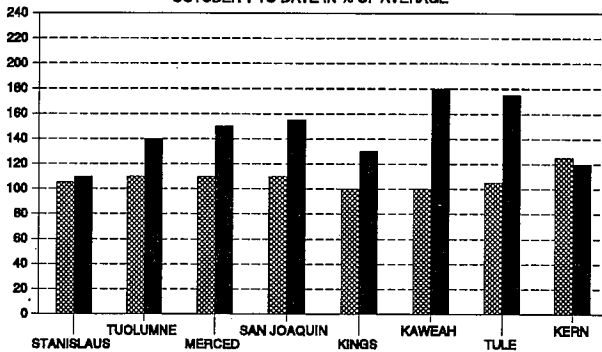
SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE



SNOWPACK - First of the month measurements made at 60 San Joaquin River Region snow courses indicate an area wide snow water equivalent of 21.5 inches. This is 60 percent of the seasonal (April 1) average and 70 percent of the average for this month.. Last year at this time the pack was holding 29.6 inches of water.

At the same time, 39 Tulare Lake Region snow courses indicated a basin-wide snow water equivalent of 18.0 inches which is 65 percent of the seasonal average and 85 percent of the average for this month. Last year at this time, the Region was holding 22.1 inches of water.

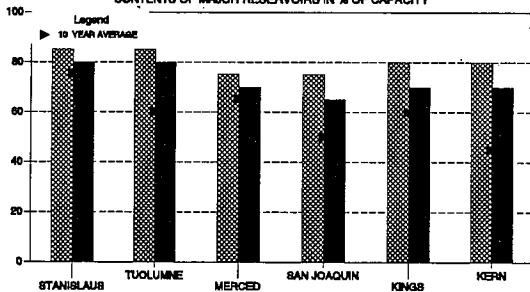
PRECIPITATION
OCTOBER 1 TO DATE IN % OF AVERAGE



PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Joaquin River Region was 135 percent of normal. Precipitation last month was about 15 percent of the monthly average. Seasonal precipitation at this time last year stood at 110 percent of normal.

Seasonal precipitation on the Tulare Lake Region was 140 percent of normal. Precipitation last month was less than 5 percent of the monthly average. Seasonal precipitation at this time last year stood at 110 percent of normal.

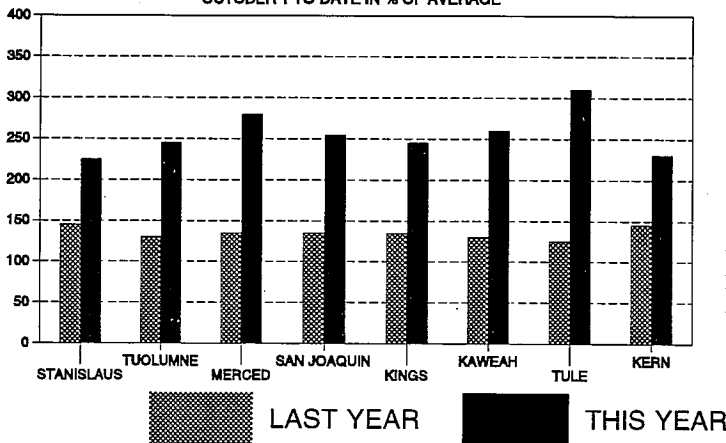
RESERVOIR STORAGE
CONTENTS OF MAJOR RESERVOIRS IN % OF CAPACITY



RESERVOIR STORAGE - First of the month storage in 33 San Joaquin River Region reservoirs was 8.8 million acre-feet which is 120 percent of average and about 80 percent of available capacity. Storage in these reservoirs at this time last year was 125 percent of average.

First of the month storage in 6 Tulare Lake Region reservoirs was 1.4 million acre-feet which is 150 percent of average. About 70 percent of available capacity was being used. Storage in these reservoirs at this time last year was 170 percent of average.

RUNOFF
OCTOBER 1 TO DATE IN % OF AVERAGE

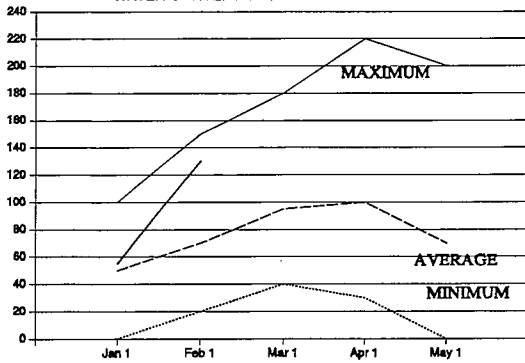


RUNOFF - Seasonal runoff of streams draining the area totaled 8.3 million acre-feet which is 245 percent of average for this period. Last year, runoff for the same period was 135 percent of average.

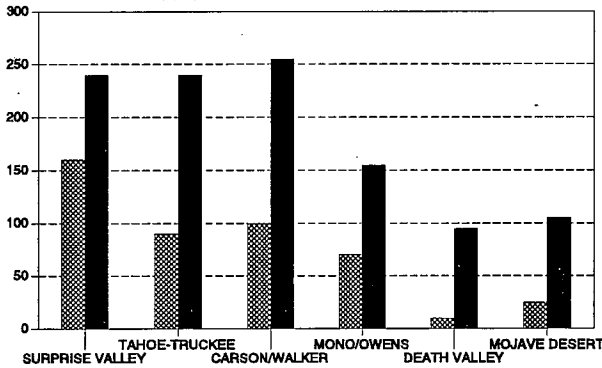
Stream runoff draining into the Tulare Lake Basin totaled 3.1 million acre-feet which is 250 percent of average for this period. Last year, runoff for this same period was 135 percent of average.

The San Joaquin River Region 60-20-20 Water Supply Index is forecasted to be 4.3 million acre-feet, assuming median meteorological conditions for the remainder of the year. which classifies the year as "wet".

SNOWPACK ACCUMULATION
WATER CONTENT IN % OF APRIL 1 AVERAGE

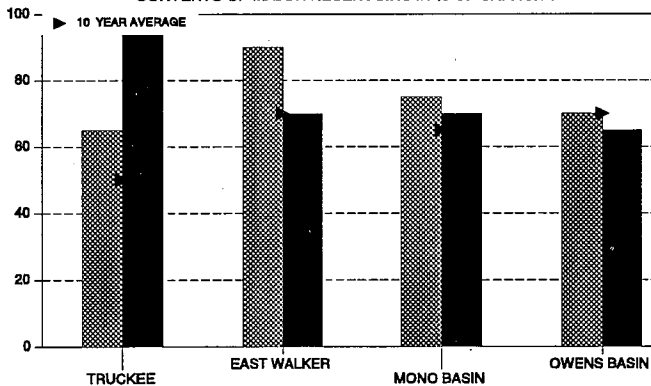


PRECIPITATION
OCTOBER 1 TO DATE IN % OF AVERAGE



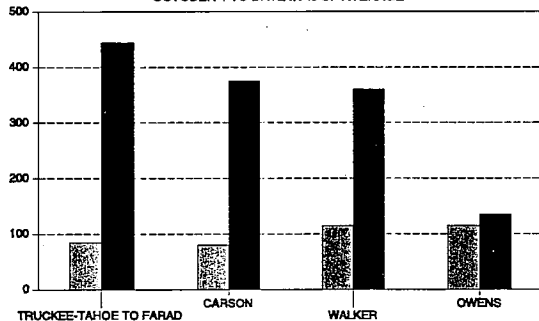
RESERVOIR STORAGE

CONTENTS OF MAJOR RESERVOIRS IN % OF CAPACITY



RUNOFF

OCTOBER 1 TO DATE IN % OF AVERAGE



LAST YEAR



THIS YEAR

NORTH AND SOUTH LAHONTAN REGIONS

SNOWPACK - First of the month measurements made at 14 North Lahontan snow courses indicate an area wide snow water equivalent of 33.4 inches. This is 190 percent of the February 1 average and 125 percent of the seasonal (April 1) average. Last year at this time the pack was holding 16.4 inches of water, 95 percent of average.

At the same time, 21 South Lahontan snow courses indicated a basin-wide snow water equivalent of 32.7 inches which is 220 percent of the average for February 1 and 135 percent of the seasonal average. Last year at this time, the pack was holding 13.9 inches of water, 85 percent of average.

PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the North Lahontan Region was 250 percent of normal. Precipitation last month was about 225 percent of the monthly average. Seasonal precipitation at this time last year stood at 115 percent of normal.

Seasonal precipitation on the South Lahontan Region was 120 percent of normal. Precipitation last month was 105 percent of the monthly average. Seasonal precipitation at this time last year stood at 55 percent of normal.

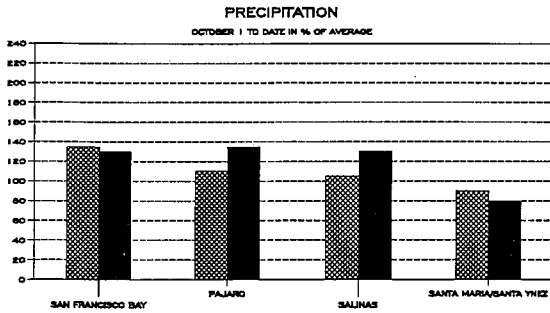
RESERVOIR STORAGE - First of the month storage in 5 North Lahontan Region reservoirs was 1.0 million acre-feet which is 185 percent of average. About 95 percent of available capacity was being used. Storage in these reservoirs at this time last year was 130 percent of average. Lake Tahoe was 6.1 feet above its natural rim on February 1.

First of the month storage in 8 South Lahontan Region reservoirs was 236 thousand acre-feet which is 85 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs at this time last year was 95 percent of average.

RUNOFF - Seasonal runoff of streams draining the North Lahontan area totaled 613 thousand acre-feet which is 400 percent of average for this period. Last year, runoff for the same period was 95 percent of average.

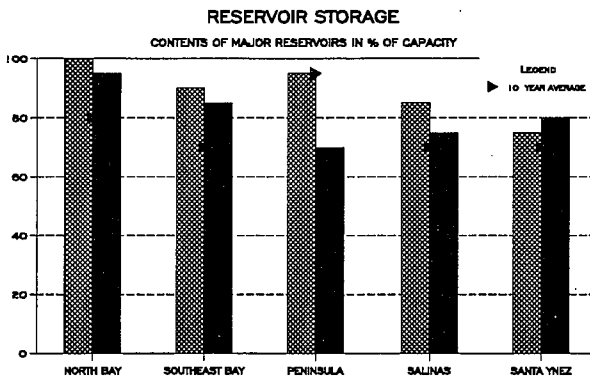
Seasonal runoff of the Owens River in the South Lahontan Region totaled 61 thousand acre-feet which is 135 percent of average for this period. Last year, runoff for this same period was 115 percent of average.

SAN FRANCISCO BAY AND CENTRAL COAST REGIONS



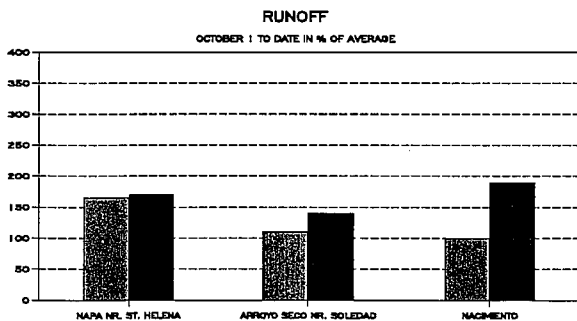
PRECIPITATION - Seasonal precipitation (October 1 through the end of last month) on the San Francisco Bay area was 130 percent of normal. Precipitation last month was about 25 percent of the monthly average. Seasonal precipitation at this time last year stood at 135 percent of normal.

Seasonal precipitation on the Central Coast area was 115 percent of normal. Precipitation last month was 10 percent of the monthly average. Seasonal precipitation at this time last year stood at 105 percent of normal.



RESERVOIR STORAGE - First of the month storage in 18 major Bay area reservoirs was 589 thousand acre-feet which is 115 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 125 percent of average.

First of the month storage in 6 major Central Coast reservoirs was 741 thousand acre-feet which is 110 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 115 percent of average.



RUNOFF - Seasonal runoff of the Napa River in the San Francisco Bay area totaled 117 thousand acre-feet which is 170 percent of average for this period. Last year, runoff for the same period was 165 percent of average.

Seasonal runoff of selected Central Coast streams totaled 544 thousand acre-feet, which is 170 percent of average for this period. Last year, runoff for this same period was 105 percent of average.

 LAST YEAR  THIS YEAR

SOUTH COAST AND COLORADO RIVER AREAS

PRECIPITATION - October through January (seasonal) precipitation on the South Coast area was 160 percent of normal. January precipitation was 180 percent of the monthly average. Seasonal precipitation at this time last year was 40 percent of normal.

Seasonal precipitation on the Colorado Desert area was 80 percent of normal. Precipitation in January was 190 percent of average. Seasonal precipitation at this time last year stood at 5 percent of average.

RESERVOIR STORAGE - February 1 storage in 29 major South Coast area reservoirs was 1.5 million acre-feet or 130 percent of average. About 75 percent of available capacity was being used. Storage in these reservoirs at this time last year was 125 percent of average.

On February 1 combined storage in Lakes Powell, Mead, Mohave and Havasu was about 45 million acre-feet or about 115 percent of average. About 85 percent of available capacity was in use. Last year at this time, these reservoirs were storing 115 percent of average.

RUNOFF - Seasonal runoff from selected South Coast streams totaled 28 thousand acre-feet which is 150 percent of average. Runoff from these streams during January totaled 16 thousand acre-feet or 205 percent of average. Seasonal runoff from these streams last year was 90 percent of average.

COLORADO RIVER - The February 1 snowpack in the Upper Colorado River basin according to U.S. Natural Resources Conservation Service reports was 175 percent of average and uniform through out the basin.

The April through July inflow to Lake Powell is forecast to be 13.2 million acre-feet, which is 171 percent of average.

CENTRAL VALLEY PROJECT

Based on February 1 conditions, Bureau of Reclamation water year forecasts for unimpaired runoff to CVP reservoirs are: Trinity--173% of average, Shasta--216% of average, American--238% of average, Stanislaus--205% of average, San Joaquin above Friant--176% of average. As of February 1, 1997 CVP storage was 9.13 million acre feet which is an increase of 0.4 million acre feet compared to one year ago, and is approximately 133% of normal for that date.

The Bureau of Reclamation will announce water allocations, based on a 90% exceedence runoff estimate, for the CVP on February 14, 1997. Agricultural contractors north of the Delta will receive 100% of their contract supply, while those south will receive 90% of their contractual supply; urban contractors will receive 100% of their contractual supply; and wildlife refuges will receive 90% of level II supplies. Sacramento water rights settlement contractors and San Joaquin Exchange contractors will receive 100% of their supplies.

Friant Division allocations will receive 100% Class I, and approximately 75% Class II supplies. Stanislaus River contractors will receive 100% of their requested supplies.

STATE WATER PROJECT

State Water Project deliveries have been approved at 2.4 million acre-feet which meets at least 70 percent of most contractors' entitlement. Approvals will be reevaluated with each new round of monthly water supply forecasts.

The extreme wetness during the past 2 months caused Lake Oroville to spill approximately 0.5 million acre-feet in December, 1996 and 1.9 million acre-feet in January, 1997 while maintaining flood control space in the reservoir.

MAJOR WATER DISTRIBUTION PROJECTS

RESERVOIR STORAGE

(AVERAGES BASED ON PERIOD RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE	1996 1,000 AF	STORAGE AT END OF APRIL		
		STORAGE 1,000 AF		1997 1,000 AF	PERCENT AVERAGE	PERCENT CAPACITY
STATE WATER PROJECT						
Lake Oroville	3,538	2,961	3,243	3,222	109%	91%
San Luis Reservoir (SWP)	1,062	995	972	945	95%	89%
Lake Del Valle	77	39	40	39	102%	51%
Lake Silverwood	73	67	39	57	85%	78%
Pyramid Lake	171	164	167	163	100%	95%
Castaic Lake	324	282	310	313	111%	97%
Perris Lake	132	115	124	112	98%	86%
CENTRAL VALLEY PROJECT						
Clair Engle Lake	2,448	2,080	2,295	2,168	104%	89%
Lake Shasta	4,552	4,096	4,313	3,937	96%	86%
Whiskeytown Lake	241	231	238	238	103%	99%
Folsom Lake	977	739	782	553	75%	57%
New Melones Reservoir	2,420	1,549	2,040	1,994	129%	82%
Millerton Lake	520	316	450	301	95%	58%
San Luis Reservoir (CVP)	971	872	914	834	96%	86%
COLORADO RIVER PROJECT						
Lake Mead	26,159	19,574	21,882	22,917	117%	88%
Lake Powell	25,002	15,098	20,186	19,108	127%	76%
Lake Mohave	1,810	1,634	1,707	1,714	105%	95%
Lake Havasu	619	579	581	580	100%	94%
EAST BAY MUNICIPAL UTILITY DISTRICT						
Pardee Reservoir	198	180	201	177	98%	89%
Camanche Reservoir	417	268	247	255	95%	61%
East Bay (4 reservoirs)	151	132	144	151	115%	100%
CITY AND COUNTY OF SAN FRANCISCO						
Hetch-Hetchy Reservoir	360	151	277	264	175%	73%
Cherry Lake	268	135	228	192	143%	72%
Lake Eleanor	26	13	26	25	191%	98%
South Bay/Peninsula (4 reservoirs)	225	176	222	182	104%	81%
CITY OF LOS ANGELES (D.W.P.)						
Lake Crowley	183	127	122	108	85%	59%
Grant Lake	48	25	46	47	187%	98%
Other Aqueduct Storage (6 res.)	95	75	54	54	72%	57%

State of California - Department of Water Resources

CALIFORNIA COOPERATIVE SNOW SURVEYS

Snow Water Equivalents (inches)			February 1, 1997					
Basin Name	Coop.		Apr 1		Percent	24 Hrs	1 Week	
Station Name	ID Agency Elev		Avg	Today	Apr 1	Ago	Ago	
-----	-----	-----	-----	-----	-----	-----	-----	
TRINITY RIVER								
Peterson Flat	PET DWR	7150	29.2	21.1	72%	21.1	16.8	
Red Rock Mountain	RRM WEAV	6700	39.6	22.2r	56%	22.2r	19.6	
Bonanza King	BNK USBR	6450	40.5	-----	-----	-----	-----	
Shimmy Lake	SHM WEAV	6200	40.3	-----	-----	-----	-----	
Middle Boulder 3	MB3 SCOT	6200	28.3	11.1	39%	11.1	9.1	
Highland Lakes	HIG WEAV	6030	29.9	15.4	51%	15.5	10.8	
Scott Mountain	SCT DWR	5900	16.0	11.2	70%	11.2	9.5	
Mumbo Basin	MUM WEAV	5700	22.4	15.5	69%	15.7	13.2	
Big Flat	BFL WEAV	5100	15.8	4.2	27%	4.1	2.0	
SACRAMENTO RIVER								
Cedar Pass	CDP USFS	7100	18.1	15.4	85%	15.2	13.6	
Blacks Mountain	BLA HAT	7100	12.7	6.8	53%	6.8	5.2	
Sand Flat	SDF MT S	6750	42.4	28.3	67%	28.1	24.2	
Medicine Lake	MED DOUB	6700	32.6	13.0	40%	13.1	12.8	
Adin Mountain	ADM BIG	6350	13.6	10.2	75%	10.2	10.1	
Snow Mountain	SNM HAT	5950	27.0	15.2	56%	15.2	-----	
Slate Creek	SLT WEAV	5600	29.0	8.1	28%	8.1	5.5	
Stouts Meadow	STM MC C	5400	36.0	-----	-----	-----	-----	
FEATHER RIVER								
Kettle Rock	KTL DWR-	7300	25.5	-----	-----	-----	-----	
Grizzly Ridge	GRZ DWR-	6900	29.7	29.5	99%	29.5	23.8	
Pilot Peak (dwr)	PLP YCWA	6800	52.6	33.7	64%	34.0	24.5	
Gold Lake	GOL DWR	6750	36.5	32.5	89%	32.4	25.7	
Humbug	HMB DWR	6500	28.0	-----	-----	-----	-----	
Rattlesnake	RTL DWR	6100	14.0	13.9	99%	13.9	8.5	
Bucks Lake	BKL DWR	5750	44.7	15.8	35%	15.7	11.3	
Four Trees	FOR DWR	5150	20.0	10.6	53%	10.7	11.5r	
EEL RIVER								
Noel Spring	NLS COE	5100	-----	3.6	-----	3.7	5.2	
Plaskett Meadows	PSM USFS	6000	-----	8.8	-----	8.9	8.6	
YUBA & AMERICAN RIVERS								
Lake Lois	LOS DWR	8800	39.5	-----	-----	-----	-----	
Schneiders	SCN SMUD	8750	34.5	52.0	151%	52.1	47.2	
Caples Lake (dwr)	CAP PG&E	7800	30.9	34.0	110%	34.0	29.4	
Alpha	ALP SMUD	7600	35.9	37.7	105%	37.7	32.0	
Beta	BTA DWR	7600	35.9	33.6	94%	33.6	29.4	
Forni Ridge	FRN USBR	7600	37.0	23.8	64%	23.8	20.5	
Silver Lake (dwr)	SIL AMAD	7100	22.7	26.0	115%	26.0	21.2	
Central Sierra Snow	LCSL NRCS	6950	33.6	44.6	133%	44.4	40.6	
Huysink	HYS NEVA	6600	42.6	30.7	72%	30.5	26.8	
Van Vleck	VVL SMUD	6700	35.9	-----	-----	-----	-----	
Robbs Saddle	RBB SMUD	5900	21.4	-----	-----	-----	-----	
Greek Store	GKS USBR	5600	21.0	17.9	85%	17.7	13.0e	
Blue Canyon	BLC USBR	5280	9.0	5.1	57%	5.5	7.3	
Robbs Powerhouse	RBP SMUD	5150	5.2	6.1	117%	6.2	6.0r	
MOKELUMNE & STANISLAUS RIVERS								
Deadman Creek	DDM PG&E	9250	37.2	41.6	112%	41.4	36.7	
Highland Meadow	HHM PG&E	8800	47.9	51.5	107%	51.4	44.5	
Gianelli Meadow	GNL USFS	8350	55.5	54.5	98%	54.5	48.6	
Lower Relief Valley	REL PG&E	8100	41.2	50.8	123%	50.8	44.2	
Blue Lakes	BLK PG&E	8000	33.1	36.7	111%	36.7	34.1	
Mud Lake	MDL SMUD	7900	44.9	65.5	146%	65.5	58.3	
Stanislaus Meadow	SLM PG&E	7750	47.5	52.6	111%	52.2	45.4	
Bloods Creek	BLD CALA	7200	35.5	37.0	104%	37.0e	32.0r	
Black Springs	BLS CALA	6500	32.0	23.7	74%	23.2e	21.0	
TUOLUMNE & MERCED RIVERS								
Dana Meadows	DAN YOSE	9800	27.7	34.0	123%	34.0	32.0	
Slide Canyon	SLI DWR	9200	41.1	59.5	145%	60.8	57.6	
Snow Flat	SNF YOSE	8700	44.1	-----	-----	-----	-----	
Tuolumne Meadows	TUM YOSE	8600	22.6	25.9	115%	26.4	23.4	
Horse Meadow	HRS USFS	8400	48.6	-----	-----	-----	-----	
Ostrander Lake	STR YOSE	8200	34.8	45.8	131%	45.1	39.9	
Paradise Meadow	PDS YOSE	7650	41.3	-----	-----	-----	-----	
Gin Flat	GIN YOSE	7050	34.2	18.5	54%	18.2	14.4	
Lower Kibbie Ridge	KIB USFS	6600	27.4	29.1e	106%	29.1e	25.8	

TELEMETERED SNOW WATER EQUIVALENTS

MAY 1, 1997

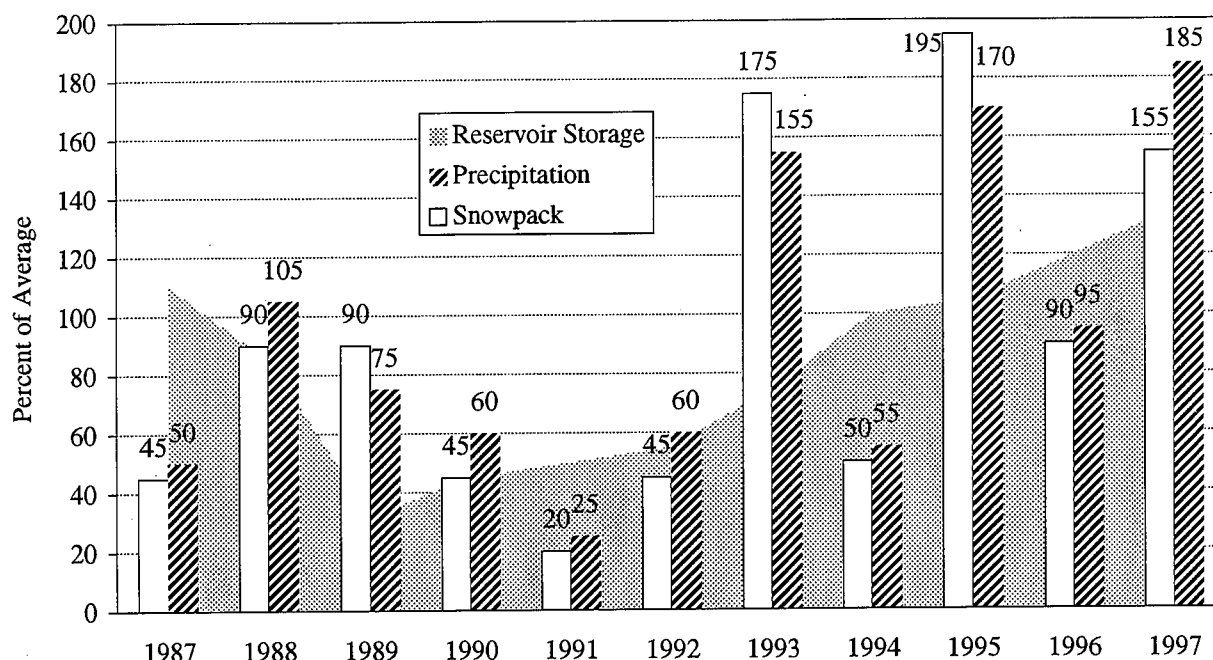
(AVERAGES BASED ON PERIOD RECORD)

BASIN NAME		INCHES OF WATER EQUIVALENT				
STATION NAME	ELEV	APRIL 1 AVERAGE	MAY 1	PERCENT OF AVERAGE	24 HRS PREVIOUS	1 WEEK PREVIOUS
SAN JOAQUIN RIVER						
Volcanic Knob	10100'	30.1	27.5	91%	27.5	30.4
Agnew Pass	9450'	32.3	—	—	—	—
Kaiser Point	9200'	37.8	—	—	—	—
Green Mountain	7900'	30.8	15.4	50%	16.3	22.6
Tamarack Summit	7600'	30.5	0.6	2%	1.4	7.5
Chilkoot Meadow	7150'	38.0	12.8	34%	13.0	18.9
Huntington Lake (USBR)	7000'	20.1	0.0	0%	0.0	3.0
Graveyard Meadow	6900'	18.8	0.0	0%	0.0	3.9
Poison Ridge	6900'	28.9	0.0	0%	0.0	0.0
KINGS RIVER						
Bishop Pass	11200'	34.0	32.8	97%	32.8	34.8
Charlotte Lake	10400'	27.5	30.4	110%	31.6	36.0
State Lakes	10400'	29.0	—	—	—	—
Mitchell Meadow	10375'	32.9	34.1	104%	34.3	38.0
Blackcap Basin	10300'	34.3	—	—	—	—
Upper Burnt Corral	9700'	34.6	37.9	110%	38.5	44.8
West Woodchuck Meadow	9100'	32.8	23.5	72%	24.9	33.0
Big Meadows (DWR)	7600'	25.9	5.4	21%	6.2	11.2
KAWEAH & TULE RIVERS						
Quaking Aspen	7200'	21.0	0.0	0%	0.0	0.0
Giant Forest (Corps)	6400'	10.0	0.0	0%	0.0	0.0
KERN RIVER						
Upper Tyndall Creek	11500'	27.7	38.8	140%	38.7	42.3
Crabtree Meadow	10700'	19.8	20.5	104%	20.5	20.5
Chagoopa Plateau	10300'	21.8	20.0	92%	20.7	24.6
Pascoes	9150'	24.9	13.1	53%	14.2	18.6
Tunnel Guard Station	8950'	15.6	0.0	0%	0.0	0.0
Wet Meadows	8900'	30.3	1.1	4%	2.0	11.9
Casa Vieja Meadows	8400'	20.9	2.6	12%	5.2	11.1
Beach Meadows	7650'	11.0	0.0	0%	0.0	0.0
SURPRISE VALLEY AREA						
Dismal Swamp	7050'	29.2	30.2	103%	30.0	32.0
TRUCKEE RIVER						
Mount Rose Ski Area	8850'	38.5	16.6	43%	17.2	24.3
Independence Lake (NRCS)	8450'	41.4	51.5	124%	51.6	52.4
Big Meadows (NRCS)	8700'	25.7	14.2	55%	14.9	20.2
Independence Camp	7000'	21.8	0.0	0%	0.0	0.0
Independence Creek	6500'	12.7	0.0	0%	0.0	0.0
LAKE TAHOE BASIN						
Heavenly Valley	8800'	28.1	16.0	57%	15.9	21.0
Hagans Meadow	8000'	16.5	0.0	0%	0.0	0.0
Marlette Lake	8000'	21.1	11.3	54%	12.1	17.0
Echo Peak 5	7800'	39.5	25.3	64%	26.3	33.0
Rubicon Peak 2	7500'	29.1	18.4	63%	19.3	23.0
Ward Creek 3	6750'	39.4	10.1	26%	11.4	17.4
Fallen Leaf Lake	6300'	7.0	0.0	0%	0.0	0.0
CARSON RIVER						
Ebbetts Pass	8700'	38.8	33.1	85%	33.4	38.1
Poison Flat	7900'	16.2	0.0	0%	0.0	1.8
WALKER RIVER						
Virginia Lakes	9200'	20.3	22.6	111%	22.9	25.1
Lobdell Lake	9200'	17.3	13.4	77%	13.7	18.3
Sonora Pass Bridge	8750'	26.0	29.1	112%	29.6	32.4
Leavitt Meadows	7200'	8.0	0.0	0%	0.0	0.0
OWENS RIVER/MONO LAKE						
Gem Pass	10750'	31.7	42.5	134%	43.1	45.1
Sawmill	10300'	19.4	14.5	75%	15.2	20.0
Cottonwood Lakes	10200'	11.6	0.5	4%	1.6	9.2
Big Pine Creek	9800'	17.9	7.2	40%	7.8	12.4
South Lake	9600'	16.0	8.5	53%	9.6	14.5
Mammoth Pass (USBR)	9500'	42.4	35.2	83%	35.6	40.5
Rock Creek Lakes	10000'	14.0	0.0	0%	0.0	4.4

NORMAL SNOWPACK ACCUMULATION EXPRESSED AS A PERCENT OF APRIL 1ST AVERAGE

AREA	JANUARY	FEBRUARY	MARCH	APRIL	MAY
Central Valley North	45%	70%	90%	100%	75%
Central Valley South	45%	65%	85%	100%	80%
North Coast	40%	60%	85%	100%	80%

February 1 Statewide Conditions



SNOWLINES

SNOW SURVEYS is pleased to welcome Pierre Stephens to our staff. He takes over for Matt Colwell. In a unique arrangement he and Matt switched jobs, with Matt moving to the Division of Operations and Maintenance. Dudley McFadden and Pierre will be jointly producing the water supply forecasts. Pierre's phone number is 916-574-2633. For those of you connecting to the Internet our e-mail addresses are:

Frank Gehrke - gridley@water.ca.gov

Dave Hart - hart@water.ca.gov

Dudley McFadden - dudley@water.ca.gov

Pierre Stephens - pierre@water.ca.gov

Bob Newton - newton@water.ca.gov

Shawn Perkins - shawn@water.ca.gov

AVERAGES used in this report are for the base period 1946-1995 for most runoff and snow parameters. Those not updated are identified by foot note on the appropriate page. The new runoff averages are about 2 percent less than the previous 1941-90 average. The reservoir storage averages have not yet been updated. Several of the upstream forecast locations on tributaries of the major streams could not be updated because the gauges have been dropped. Future bulletins may not contain forecasts for these points as it is impossible to verify the forecast accuracy.

THIS YEAR'S meeting of the Western Snow Conference will be a joint meeting with the Eastern Snow Conference and the Canadian Geophysical Union. The location is Banff, Alberta Canada. The deadline for abstract submission has been extended to March 1, 1997. The meeting is May 4-8. For further information try <http://www.geo.ucalgary.ca/~wu/cguconf.html> or contact Frank Gehrke at 916-574-2635.

SNOWPACK - Snow data is a major index of spring and summer runoff from Sierra Nevada watersheds. April 1 data historically reflects the magnitude of the snowpack at or near the maximum seasonal accumulation. Averages are based on April 1 data for the period 1946-1995 (50 years, except for data sites established after 1941).

PRECIPITATION - Averages are based on April 1 data for the period 1946-1995 (50 years, except for data sites established after 1941).

RUNOFF AND FORECASTS - Runoff data and runoff forecasts are shown as unimpaired values. Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Forecast of runoff assumes median conditions subsequent to the date of forecast.

Runoff probability ranges are statistically derived from historical data. The 80 percent probability range is comprised of the 90 percent exceedence level value and the 10 percent exceedence level value. This means that actual runoff should fall within the stated limits eight times out of ten.

Runoff averages for most streams are based on the period 1946-1995. For more details contact California Cooperative Snow Surveys, P.O. Box 942836, Sacramento, CA 94236-0001, (916) 574-2635 or gridley@water.ca.gov.

INDICES OF WATER AVAILABILITY

The Sacramento River Hydrologic Region 40-30-30 Water Supply Index. The 40-30-30 represent the percentage weight given to the three variables in the formula for the index. The first variable is the forecasted unimpaired runoff from April through July (40 Percent). The second variable is the forecasted unimpaired runoff from October through March (30 Percent). The third variable is the previous year's index with a cap to account for required flood control releases during wet years. The basins used in this computation are those used in the Sacramento River water year unimpaired runoff.

The Sacramento River water year unimpaired runoff is the sum of: Sacramento River above Bend Bridge, Feather River Inflow to Lake Oroville, Yuba River near Smartville and American River Inflow to Folsom Lake.

The San Joaquin River Hydrologic Region 60-20-20 Water Supply Index. In a similar manner, the 60-20-20 represents the percentage weights on April through July runoff, October through March runoff and previous year's index. The San Joaquin River unimpaired runoff is the sum of: Stanislaus River Inflow to New Melones Lake, Tuolumne River Inflow to New Don Pedro Reservoir, Merced River Inflow to Lake McClure and San Joaquin River Inflow to Millerton Lake.

Prior month unimpaired runoff is the sum of the runoff in the eight major rivers used in the two above indices.

Remains of Lower Kibbie Ridge snow sensor following a fire in September, 1996. The heat was so intense the seams in the aluminum box split.

Photo by Dave Hart, DWR

State of California – The Resources Agency
DEPARTMENT OF WATER RESOURCES
P.O. Box 942836
Sacramento, CA 94236-0001

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